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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/678,724	10/04/2000	Steven Treiber	1086.1011.001	6428

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EXAMINER
PHAM, THOMAS K

ART UNIT	PAPER NUMBER
2121	

DATE MAILED: 09/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/678,724	TREIBER ET AL.	
	Examiner	Art Unit	
	Thomas K Pham	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 June 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-8 and 16-22* is/are allowed.

6)☒ Claim(s) *9-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Amendment

1. This action is in response to request for re-consideration filed on 6/7/2004.

2. New claims 21-22 filed by the applicant have been entered.

3. Claims 9-15 has been considered but they are not persuasive.

4. Claims 1-8 and 16-22 are allowed.

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action.

Quotations of U.S. Code Title 35

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim Rejections - 35 USC § 103

Claims 9-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,402,333 ("Cardner") in view of U.S. Patent 5,687,090 ("Chen").

Regarding claim 9

Cardner teaches a method for determining state of physical properties of a chemical process, comprising the computer implemented steps of: rigorously modeling a subject chemical process at steady state, including modeling physical properties of the chemical process at steady state, said modeling providing instantaneous physical property values for a given time, indicative of respective physical properties at steady state (col. 6 lines 40-61, "Input to the simulation ... first-principles model is adequate") but does not specifically teach using the instantaneous physical property values, estimating state of the physical properties over a period of time using a first order dynamics of mixing analysis, such that estimates of the physical properties are dynamically calculated based on the instantaneous physical property values for a given time provided by the rigorous steady state modeling (little patentable weight is given to the equation for estimating the physical properties in the absence of any demonstrated patentable difference between the prior art and the claimed invention). However, Chen teaches calculating the estimated physical property of a polymer solution based on the properties of the functional group and from the property of the polymer components and more (col. 11 lines 44-62, "A number of polymer component ... solvent(s), catalyst(s), etc") for the purpose of combining the capabilities widely used in chemical process simulation with features and models necessary for modeling polymer manufacturing processes. Therefore, it would be obvious to one of ordinary skill in the art at the time of the invention to incorporate the calculated physical properties of Chen with the steady

state system of Cardner because it would provide for the purpose of combining the capabilities widely used in chemical process simulation with features and models necessary for modeling polymer manufacturing processes.

Regarding claim 10

Cardner teaches the physical properties include melt index, density, tacticity, molecular weight distribution, xylene solubles, co-polymer composition and production weight (col. 5 lines 33-38, "Product properties for solid ... behavior of gasoline").

Regarding claim 11

Cardner teaches the steady state modeling means computes values of the physical properties in terms of molecular weight distribution, and the inferential model means correlates at least melt index and density with molecular weight distribution (col. 5 lines 33-35, "Product properties ... particle size distribution").

Regarding claim 12

Cardner teaches the steady state modeling means further calculates an instantaneous residence time of a reactor in the chemical process (col. 7 lines 7-18, "the simulation models 110 ... equipment PTLF regulatory variables"); and the predicted product property signal 117 calculates cumulative values for the physical properties by mixing the values of the physical properties measure by raw sensor with previously calculated cumulative values of the physical properties over the residence time as last calculated by the steady state modeling (col. 17 lines 33-39, "the validity check 130 ... corrected flow signals 115").

Regarding claim 13

Cardner teaches the inferential model means further receives as input, off-line measured values of the physical properties and adjusts the determined state of the physical properties based on the received offline measured values of the physical properties (col. 7 lines 4-6, "The second type of input ... or computed sources").

Regarding claim 14

Cardner teaches the inferential model means calculates and outputs values of parameters, of the chemical process, for maintaining the physical properties at a user specified state (col. 7 lines 9-14, "Model calibration adjustment ... stream composition values"); and the apparatus further comprises a process control subsystem coupled to receive the parameter values output from the inferential model means, such that the process control subsystem controls the chemical process according to the parameter values (col. 10 lines 25-38, "One procedure keeps the model ... product properties").

Regarding claim 15

Cardner teaches the process control subsystem includes sensors measuring physical conditions of the chemical process (col. 7 lines 36-39, "The validity check module ... sensors such as pressure)"); and the inferential model means updates sensor measurements (col. 7 lines 39-45, "These signals are screened ... data reconciliation module 108").

Reasons for Indicating Allowable Subject Matter

8. Claims 1-8 and 16-22 are allowed.

9. The following is an examiner's statement of reasons for allowance:

While Cardner discloses improving model product property estimates from process simulation models run in parallel with the process including comparison of model stream quality estimates with measured values to produce a corrective signal for adjustment of the model.

Hamielec (reference cited on 3/11/2004) teaches a process simulator and modeling of polymer manufacturing systems operate under steady-state conditions for calculating full distribution of polymer properties from the instantaneous property measured.

And Chen (reference cited on 3/11/2004) teaches a methodology for characterizing polymer components in process simulation software such as thermo-physical property calculations and polymerization kinetics.

Neither of these references taken either alone or in combination discloses a computer apparatus for determining state of physical properties of a chemical process having all the claimed features of applicant's instant invention, specifically including: "an inferential model means coupled to receive the values of the physical properties at steady state from the steady state modeling means, the inferential model means for determining state of the physical properties over a period of time based on values of the physical properties at steady state". Also, there is no motivation to combine the Cardner reference with the Hamielec or Chen reference to meet these limitations.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner *Thomas Pham*; whose telephone number is (703) 305-7587 or the new number (571) 272-3689 beginning around mid. October 2004, Monday to Friday from 8:00 AM - 5:00 PM EST or contact Supervisor *Mr. Anthony Knight* at *(703) 308-3179* (or 571 272-3687 starting around mid. Oct. 2004).

Thomas Pham
Patent Examiner

TP

September 16, 2004

Anthony Knight
Supervisory Patent Examiner
Group 3600